Department of Marine Resources
Site Review

Glidden Point Oyster Company, Inc.
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Edgecomb, ME 04556
Phone: 207-315-7066

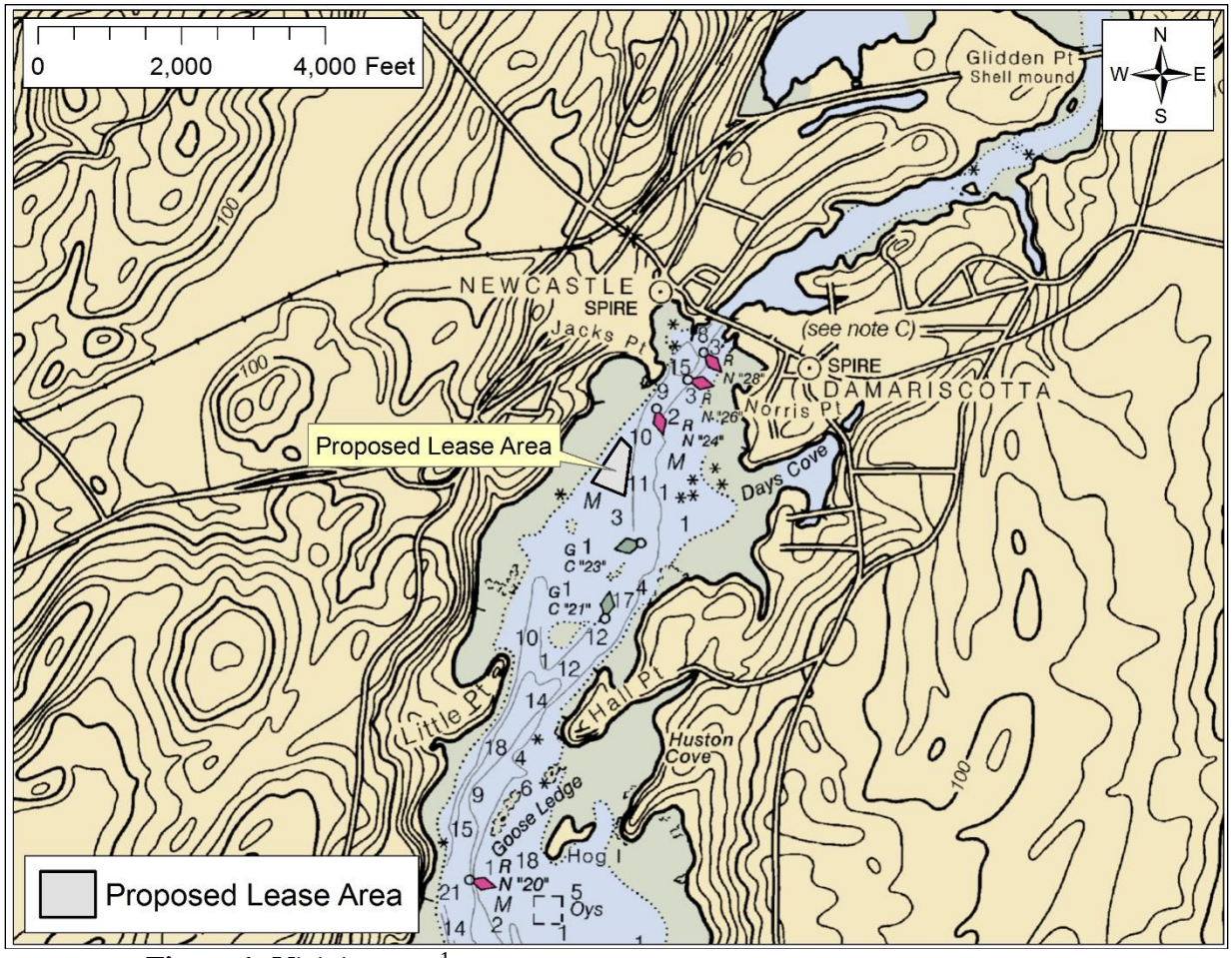

Figure 1: Vicinity map.[1]

Location: South of Jack's Point, Damariscotta River, Newcastle, Lincoln County, Maine

Purpose: Standard lease for the suspended culture of American/eastern oysters (*Crassostrea virginica*) and northern quahogs (*Mercenaria mercenaria*)

Site Review by: Jon Lewis, Marcy Nelson and Flora Drury
Report Preparation by: Flora Drury, Marcy Nelson, and Jon Lewis January 24, 2020

[1]All figures in this report were created in ArcMap version 10.6 using digitized NOAA Nautical Charts or geo-referenced aerial photographs provided by The Maine Office of GIS (orthoCentralCoast2003and2005, previously known as Low_Tide_2004).

The applicant, Glidden Point Oyster Company, Inc., is requesting 5.25[2] acres south of Jack's Point in the Damariscotta River for the suspended culture of American/eastern oysters (*Crassostrea virginica*) and northern quahogs (*Mercenaria mercenaria*) (Figures 1 & 2). The applicant plans to use the lease as a nursery site and is proposing to install a combination of floating bags (30"Lx23"Wx4"H) and wooden nursery trays (38"Lx23"Wx4"H) on the lease site.[3] The proposal is within the footprint of a 7.75-acre lease currently operated by the applicant. This lease, DAM JP2, is permitted for the bottom culture of shellfish (Figure 3). The applicant also operates a 2.46-acre lease, DAM JP, directly adjacent to the proposal, which is permitted for the suspended culture of shellfish (Figure 3). The current application is a request to expand upon Glidden Point Oyster Company's existing operations with the installation of surface gear next to that already permitted in DAM JP, while retaining the ability to bottom-plant shellfish on their existing lease DAM JP2.

Maine Department of Marine Resources (MDMR) staff Jon Lewis, Marcy Nelson, and Flora Drury conducted an assessment of the proposed lease site on September 27, 2019. MDMR Hearing Officer Erin Wilkinson was also present. MDMR arrived on site at 10:10 am, shortly before high tide (Table 1).

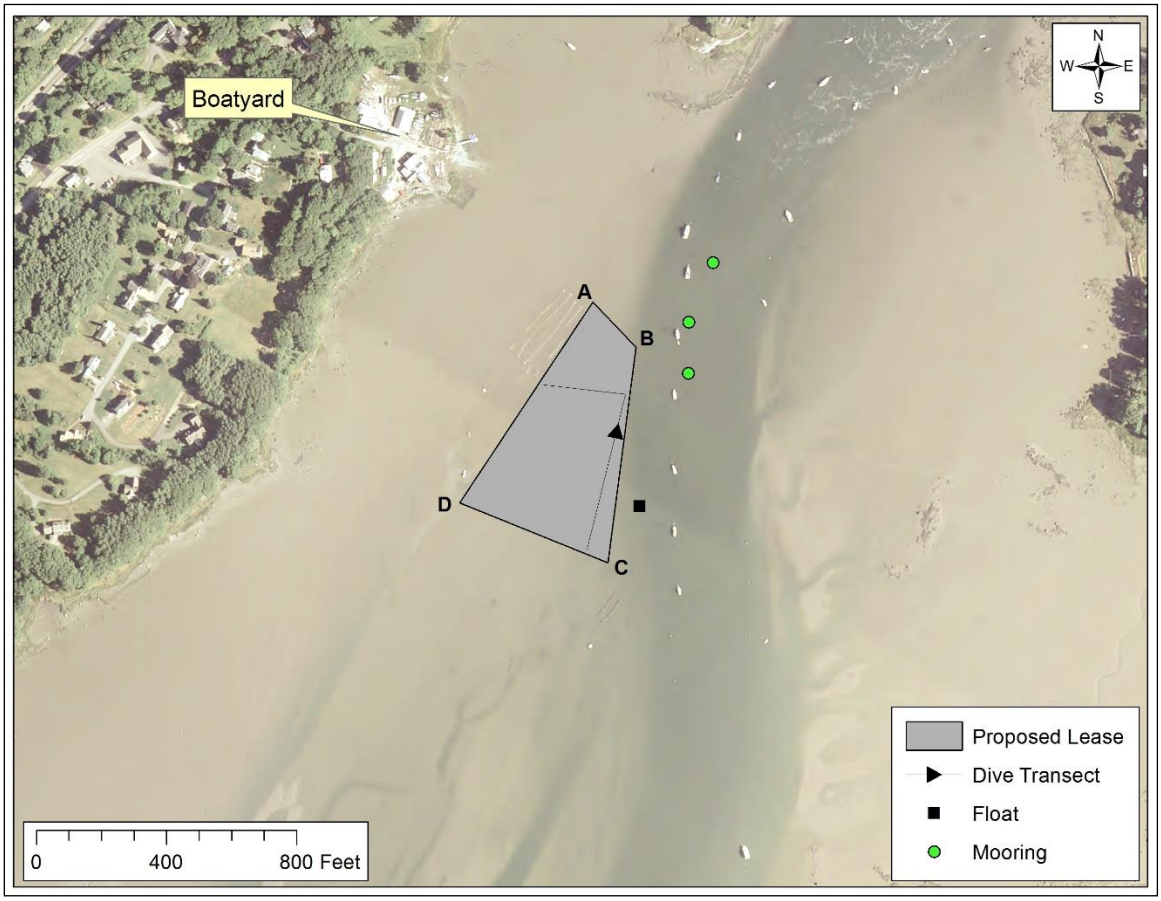

Figure 2: Proposed lease area with approximate dive transect conducted on September 27, 2019.

[2] Applicant originally requested 5.5 acres. DMR calculations, based on the coordinates provided by the applicant, indicate the area is 5.25 acres.
[3] Application, pages 14-18

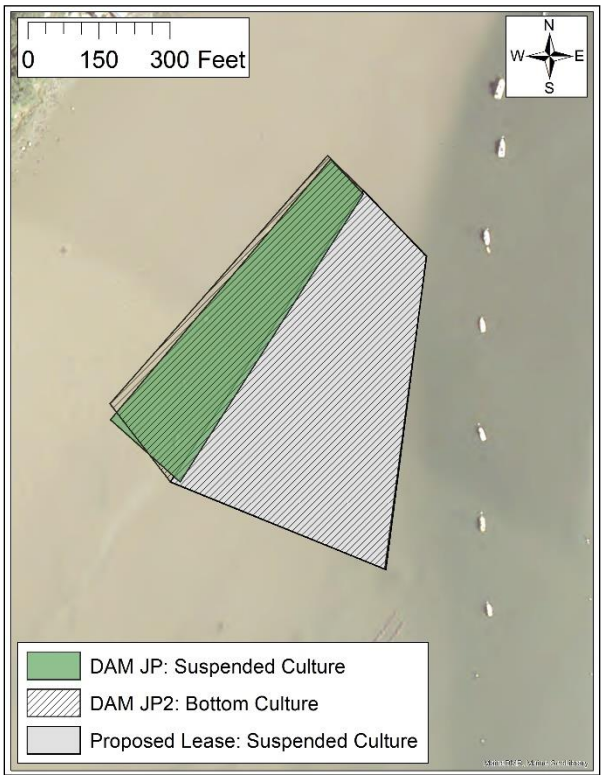

Figure 3: Existing leases held by Glidden Point Oyster Company, Inc. in the vicinity of the proposal.

General Characteristics

The proposed lease area is located south of Jacks Point in the Damariscotta River (Figures 1 & 2, Images 1-5). The twin villages of Damariscotta and Newcastle are located north of the proposed lease, with the Newcastle shoreline to the west and the Damariscotta shoreline to the east. Residential and commercial properties, including a boatyard, are visible from the proposed lease (Image 4), and a mooring field is located to the northeast and east of the site (Figure 2, Images 1-3).

Image 1: Looking southeast at the Damariscotta shoreline from the eastern boundary of the proposal (September 27, 2019).

Image 2: Looking northeast at the twin villages of Damariscotta and Newcastle from the eastern boundary of the proposal (September 27, 2019).

Image 3: Looking north at Jacks Point from the eastern boundary of the proposal (September 27, 2019).

Image 4: Looking northwest at the Newcastle shoreline and neighboring boatyard from the eastern boundary of the proposal (September 27, 2019).

Image 5: Looking southwest at the Newcastle shoreline from the eastern boundary of the proposal (September 27, 2019).

Depth

MDMR staff measured depths at the corners of the proposed site at approximately 10:30 am on September 27, 2019 using a transom-mounted depth sounder. The tide was high at 10:34 am on this date (Table 1). At the time of MDMR's site assessment, corners of the proposed lease site ranged in depth from approximately 12 to 18.5 feet, increasing in depth from west to east. Correcting for tidal variation derives water depths approximately 10.44 feet lower (1.56-8.06) at mean low water (0.0 feet).

Table 1: Tide predictions at Newcastle, Damariscotta River, Maine (43.0333° N, 69.5367° W).[4]

Date	Time	Height (ft)
9/27/19	4:28 AM	-0.90 L
9/27/19	10:34 AM	10.44 H
9/27/19	4:48 PM	-0.70 L

Bottom Characteristics

MDMR staff observed the bottom characteristics of the proposed lease site via a SCUBA transect on September 27, 2019 (Figure 2). Bottom characteristics were categorized using the Coastal and Marine Ecological Classification Standard (CMECS), a national standard for describing features of

[4] http://tbone.biol.sc.edu/tide/tideshow.cgi

the marine environment (Table 2). Sediment information was determined based on visual analysis of the video; no sediment samples were taken, or grain size analysis performed. The bottom of the proposed lease site is primarily composed of soft mud (Figure 3 & Image 6).

Table 2: Bottom characteristics of proposed site.

Substrate Origin	Substrate Class	Substrate Subclass	Substrate Group
Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Mud

Image 6: Bottom of proposed lease site (September 27, 2019).

Position and Distances to Shore

POSAID Positioning Software was used to verify the distances and bearings between proposed lease corners. Distances to shore were determined using the measuring tool in ArcMap 10.6, digital orthophotography provided by the Maine Office of GIS, and the application coordinates.

Application Coordinates – 5.25 Acres (Figure 2)

Corner	Latitude	Longitude
A	44.02883°N	69.53919°W then 192.83 feet at 135.92° True to
B	44.02845°N	69.53868°W then 668.46 feet at 187.01° True to
C	44.02663°N	69.53899°W then 492.62 feet at 291.72° True to
D	44.02713°N	69.54073°W then 740.35 feet at 33.17° True to A.

Table 3: Approximate distances from proposed lease to surrounding features (Figures 1 & 2). Measurements were made using digital orthophotography provided by the Maine Office of GIS (*orthoCentralCoast2003and2005,* previously known as *Low_Tide_2004*).

Feature	Distance
Corner A to nearest point, western shoreline of the Damariscotta River (MLW)	~540 feet to the northwest
Corner A to Jacks Point (MLW)	~640 feet to the north
Corner B to nearest point, eastern shoreline of the Damariscotta River	~1,325 feet to the east
Corner B to nearest intertidal ledges, eastern shoreline of the Damariscotta River	~1,010 feet to the southeast
Corner B to red nun "24" (NOAA Chart)	~650 feet to the northeast
Corner C to nearest point, eastern shoreline of the Damariscotta River (MLW)	~1,210 feet to the southeast
Corner C to nearest intertidal ledges, eastern shoreline of the Damariscotta River (MLW)	~870 feet to the northeast
Corner C to green can "23" (NOAA Chart)	~700 feet to the southeast
Corner D to nearest point, western shoreline of the Damariscotta River (MLW)	~550 feet to the west

The criteria MDMR uses to determine the suitability of an aquaculture operation to a particular area (MDMR Regulations Chapter 2.37(A)) are discussed, with respect to the proposal, below:

(1) Riparian Ingress and Egress

The shorelines of the upper Damariscotta River host both residential and commercial properties. During the site visit conducted on September 27, 2019, MDMR staff observed docks on both the eastern and western shorelines of the river, in the vicinity of the proposal. The proposed lease is located over 1,300 feet from the river's eastern shoreline and is separated from the eastern shoreline by a marked channel and tidally-exposed mudflats. Therefore, it is unlikely to interfere with riparian access in the Town of Damariscotta.

At the closest point, the proposed lease is located approximately 550 feet from the river's western shoreline at mean low water. During the site visit, MDMR staff observed approximately six docks and a boatyard to the west of the proposal. The proposed lease sits to the east of, and parallel to, lease DAM JP, which is permitted to deploy suspended gear. Therefore, the applicant is not proposing to install surface gear closer to the western shoreline than that which already exists (Figures 3 & 4). When considering Glidden Point Oyster Company Inc.'s proposal in light of existing surface gear in the area, however, it appears that the addition of gear in this area is likely to make it more difficult for landowners west of the proposed lease to access the river's main channel from their properties. This is because the proposal would add gear between leases DAM JP and DAM NP, therefore removing a gear-free route from the river's western shore to the main channel (Figures 3 & 4). It should be noted that the applicant has proposed a 125-foot-wide contiguous gearless corridor that would run NW-SE through the proposed lease site and existing lease DAM JP.[5] However, this gearless corridor was not proposed or conditioned during the issuance of DAM JP and is

[5] Application, page 23

therefore not enforceable. This corridor appears adequate for depth-appropriate vessels propelled by motor or oar to navigate through if travelling from the western shore of the Damariscotta River to the main channel. For vessels operating by sail, or for vessels under tow, this distance may not be appropriate, depending on environmental conditions, vessel size, and/or operator experience.

Moorings were also observed nearby the proposed lease during the September 27, 2019 site visit. Although moorings were observed from the lease site in most directions, areas to the north and to the east hosted the highest mooring density. The two closest moorings observed were located approximately 170 and 180 feet to the east (Figure 2 & Images 1-2). Accessing these moorings from the west could be more difficult if the proposed lease were to be granted.

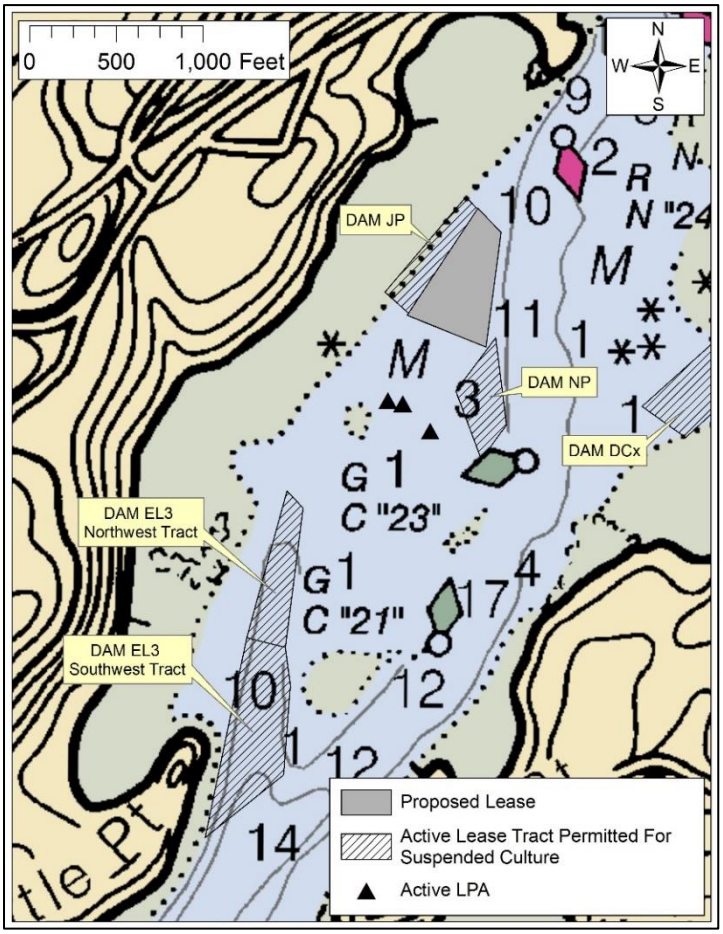

Figure 4: Active lease tracts permitted for suspended culture nearby the proposed lease.

(2) Navigation

The Damariscotta River, which hosts a marked navigation channel that runs roughly north to south, is used by both recreational and commercial mariners. The ~10-foot contour line that delineates the western boundary of the river's main channel sits approximately 50 feet from the proposal at the closest point and runs roughly parallel to the proposal's eastern boundary. The proposed lease is located to the west of this contour line, in waters ranging from 2-8 feet in depth at mean low water. It is unlikely that the proposal will interfere with vessels operating in the

Damariscotta River's main navigation channel because it is located outside of this channel, and because of the shallow nature of the proposed lease.

Vessels operating to the west of the marked channel, however, may be impacted by the proposed lease activities. The proposal would increase the amount of suspended gear on the western side of the upper Damariscotta River, an area which already hosts multiple lease tracts permitted to deploy suspended gear (Figure 4). In a letter written to MDMR staff in response to the scoping session for this application, the Harbormaster for Damariscotta and Newcastle stated that the proposed lease would "make passage by small sailboats impossible when sailing from the channel westward into the area north and west of DAM JP2". According to a Harbormaster Questionnaire completed for a different application in this area, the boatyard on the Newcastle shoreline located northwest of the proposed lease hauls boats in the fall, stores them for the winter, and launches them in the spring, so "boat access via motor and sail is imperative".[6]

According to the application, gear would be absent in the center of the site, which would create a 125-foot gearless corridor running NW-SE through the center of the proposal and existing lease DAM JP.[7] However, this gearless corridor was not proposed or conditioned during the issuance of DAM JP and is therefore not enforceable. This corridor appears adequate for depth-appropriate vessels propelled by motor or oar to navigate through if travelling from the western shore of the Damariscotta River to the main channel. For vessels operating by sail, or for vessels under tow, this distance may not be appropriate, depending on environmental conditions, vessel size, and/or operator experience.

(3) Fishing and Other Water-Related Uses

During MDMR's site assessment on September 27, 2019, no commercial or recreational fishing activities were observed within or in the immediate vicinity of the proposed lease site. Clams (*Mya arenaria*) and oysters (*C. virginica*) are harvested from the extensive tidally-exposed mudflats and ledges in the surrounding area. At extreme low water events, it is possible that sections of the lease might become available for intertidal shellfish harvest, however, the proposed area is already leased by the applicant for the purpose of bottom culture and, according to the lease decision, "dragging and shellfish harvesting by anyone other than the leaseholder is prohibited on the site".[8]

Recreational fishing is also known to occur to in the vicinity of the proposed lease. In the application, the applicant proposes to allow recreational fishing within the limits of the proposal. Although the majority of the lease site would be occupied by surface gear, and therefore more difficult for recreational fishers to use, it appears that recreational fishing could occur in the gearless sections on the eastern portion of the site, and within the proposed 125'-wide gearless corridor that would run NW-SE through the site.[9]

During the MDMR site visit, a float was moored approximately 75 feet to the east of the proposal (Image 7 & Figure 2). It is unknown whether this float is associated with the

[6] Harbormaster Questionnaire Completed on 04/02/2019 in response to Mook Sea Farms application located west of Miles Hospital.
[7] Application, page 23
[8] DAM JP2 Lease Decision, signed 12/18/2018
[9] Application, page 23

applicant's current operations on leases DAM JP and DAM JP2, with the operations of a nearby grower, or with other water-related uses (Figures 3 & 5).

Image 7: Float moored east of proposal (September 27, 2019).

(4) Other Aquaculture Uses

Five active aquaculture leases and four Limited Purpose Aquaculture (LPA) licenses are located within 1,000 feet of the proposed lease site (Table 4 & Figure 5). Additional leases and LPAs are located both upstream and downstream of the proposed lease in the Damariscotta River.

Table 4: Active aquaculture leases and licenses within 1,000 feet of the proposed lease.

Lease/License Acronym	Lease/License Holder	Acreage	Purpose	Distance from Proposed Lease
DAM JP2	Glidden Point Oyster Company	7.75	Bottom Culture of Shellfish	Overlaps with
DAM JP	Glidden Point Oyster Company	2.46	Suspended Culture of Shellfish	Overlaps with
DAM NP	Eric Peters	2.55	Bottom and Suspended Culture of Shellfish	10 ft
DAM DCx	Mook Sea Farms	3.85	Suspended Culture of Shellfish	960 ft
CPRE118	Christine Preston	LPA	Suspended Culture of Shellfish	500 ft
FBES119	Frederick Bess	LPA	Suspended Culture of Shellfish	485 ft
ABRA119	Andrew Brand	LPA	Suspended Culture of Shellfish	485 ft
RMAC218	Richard MacKenzie	LPA	Suspended Culture of Shellfish	570 ft
DAM EL3	Mook Sea Farms, Inc	15.15	Bottom and Suspended Culture of Shellfish	896 ft

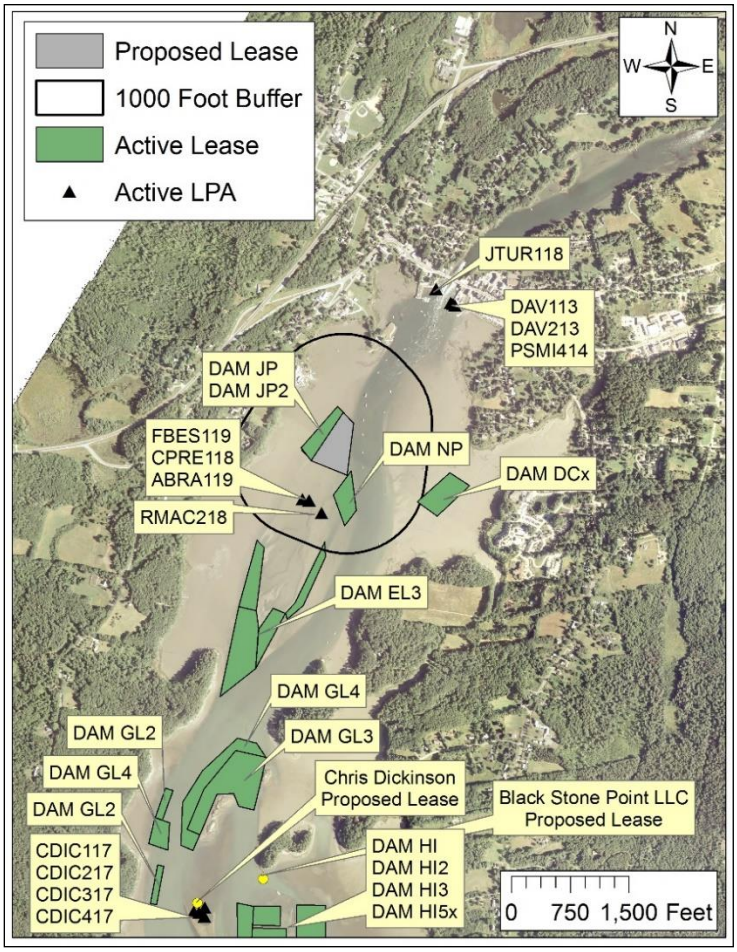

Figure 5: Active aquaculture leases and licenses near the proposed lease.

(5) Existing System Support

On September 27, 2019, MDMR staff conducted a SCUBA transect of the proposed lease site to assess the epibenthic ecology of the area (Figure 2). The bottom of the proposed lease is comprised mainly of soft mud (Images 6 & 8). Epibenthic macro flora and fauna observed during the dive transect are described in Table 5.

Table 5: Species observed during dive transect on September 27, 2019.

Species Observed	
American oyster (*Crassostrea virginica*)	Abundant
Hermit crabs (*Pagurus sp*)	Abundant
Filamentous algae species	Abundant
Benthic microalgae	Abundant
Northern quahog (*Mercenaria mercenaria*)	Common
Sea lettuce (Ulva sp)	Common-Rare
Green crab *(Carcinus maenas)*	Common-Rare
Horseshoe crabs (*Limulus polyphemus*)	Common-Rare
Colonial tunicate (*Didemnum sp.*)	Common-Rare
Sponge sp. (Phylum *Porifera*)	Rare

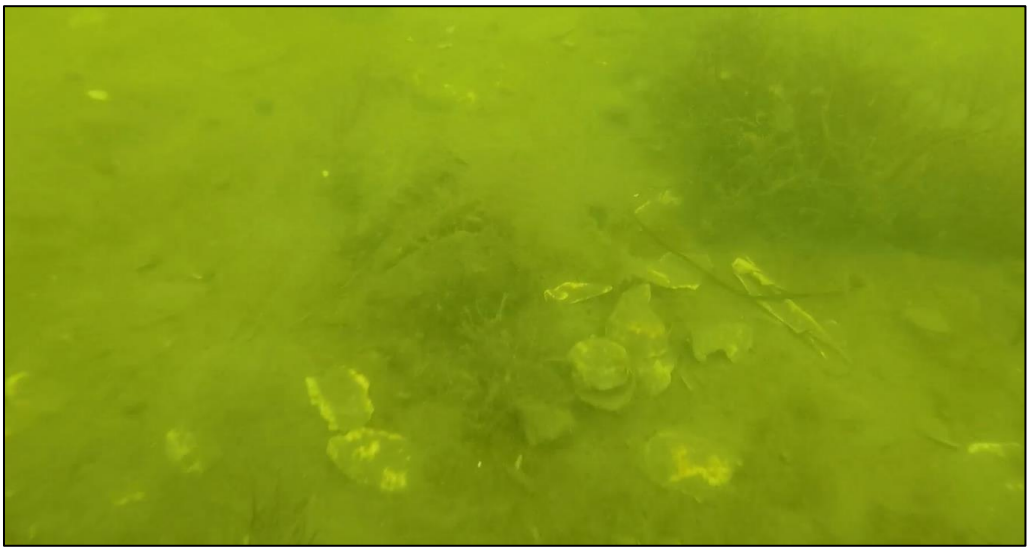

Image 8: Bottom of proposed lease site (September 27, 2019).

Eelgrass (*Zostera marina*)

Historical records of eelgrass beds documented by MDMR in 2005 do not indicate eelgrass presence in the vicinity of the proposed lease site (Figure 6). Additionally, no eelgrass was observed during MDMR's underwater site assessment on September 27, 2019 (Figure 2).

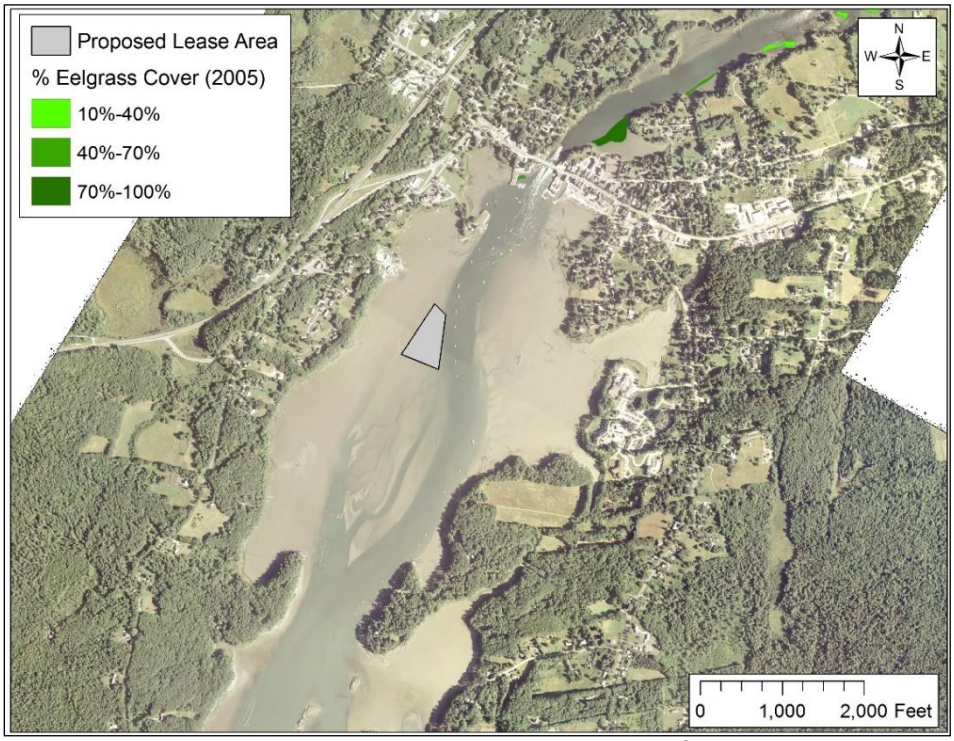

Figure 6: Historical records of eelgrass (*Z. marina*)[10] in the vicinity of the proposed lease site.

[10] Data obtained from Maine Department of Marine Resources Open Data "MaineDMR – Eelgrass 2010".

Wildlife

According to GIS (Geographic Information System) data maintained by MDIF&W and available through the Maine Office of GIS, the proposed lease is located approximately 60 feet to the east of Tidal Wading Bird and Waterfowl Habitat (Figure 7). This habitat is defined under Maine's Natural Resources Protection Act (NRPA) as Significant Wildlife Habitat. Additionally, the proposal sits over 3,000 feet to the north of the 1/4-mile buffer associated with bald eagle (*Haliaeetus leucocephalus*) nests in Maine (Figure 7).

In an email dated July 30, 2019, Becca Settele, a Wildlife Biologist for MDIF&W, stated "minimal impacts to wildlife are anticipated for this project".

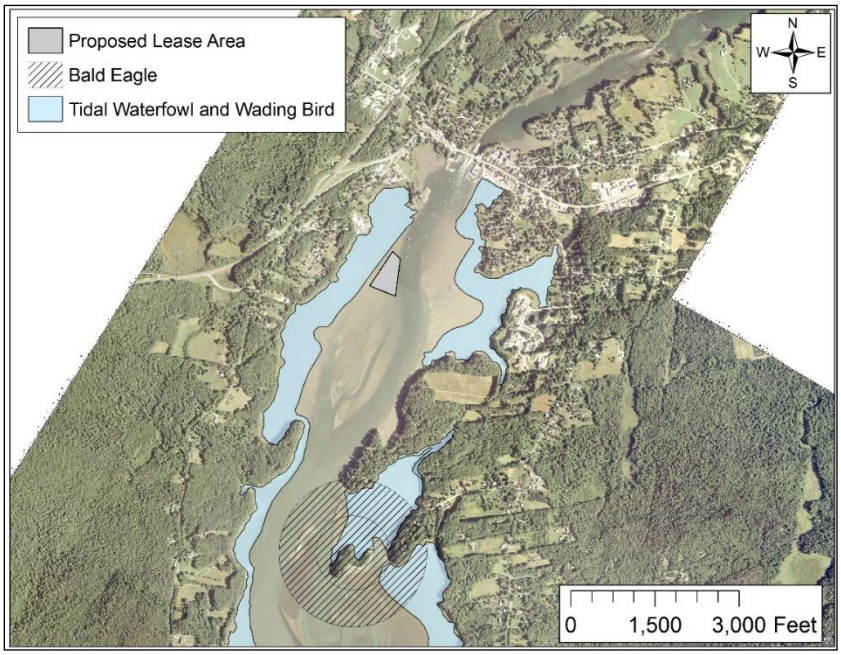

Figure 7: Tidal Wading Bird and Waterfowl Habitat[11] and Endangered, Threatened, or Species of Special Concern Habitat[12] near the proposed lease site.

(6) Interference with Public Facilities

The proposed lease is not within 1,000 feet of any beach, park, docking facility, or conserved lands owned by federal, state, or municipal governments (Figure 8).

[11] Data obtained from MDIWF maintained SDE Feature Class "GISVIEW.MEIFW.Twwh"
[12] Data obtained from MDIWF maintained SDE Feature Class "GISVIEW.MEIFW.ETSC"

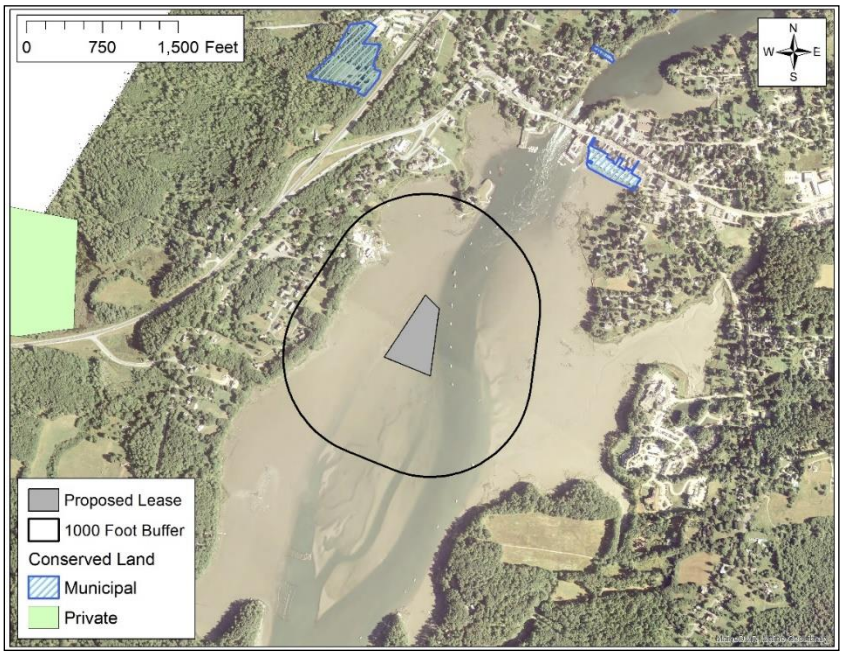

Figure 8: Public facilities near the proposed lease site.[13]

(7) Water Quality

The proposed lease area is currently classified, by the Maine DMR Bureau of Public Health, as "Open/Approved" for the harvest of shellfish.

(8) Lighting

According to the application, lights will not be used on the proposed lease.[14]

(9) Noise

The applicant is proposing to access the site with skiffs ranging from 16' to 28' in length.[15,16] Additionally, the applicant proposes to clean gear on the site with a ½ horsepower water pump that would be housed in a covered box to reduce noise levels.[17]

(10) Visual Impact

The applicant proposes the use of floating bags (30"Lx23"Wx4"H) and wooden nursery trays (38"Lx23"Wx4"H) on the lease site.[18] No support structures, such as barges or sheds, would be located on the lease site.[19] The proposed gear types comply with MDMR height limitations.

[13] Data obtained from SDE Feature Class sourced from The Maine Office of GIS "GISVIEW.MECONSLANDS.Conserved_Lands"
[14] Application, page 5
[15] Application, page 3
[16] Information on the motors that would be used on these vessels was not included in the application.
[17] Application, page 4
[18] Application, pages 14-18
[19] Application, page 2